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EXAMINER

BROCK II, PAUL E

ART UNIT PAPER NUMBER

2815

DATE MAILED: 05/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/039,679

Applicant(s)

BUCHWALTER ET AL.

Examiner

Paul E Brock II

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-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 02 May 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 10-25 and 27-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 10-25 and 27-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other:

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 10 – 25, and 27 – 30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Claim 10 recites the limitation "the following steps" in the first line of the claim. There is insufficient antecedent basis for this limitation in the claim. For purposes of this office action "the following steps" will be considered --steps--.

4. Claim 10 recites the limitation "the indicated order" in the second line of the claim. There is insufficient antecedent basis for this limitation in the claim. No order has been indicated in the claims. Therefore, no order will be considered.

5. Claim 28 recites the limitation "the following steps" in the first line of the claim. There is insufficient antecedent basis for this limitation in the claim. For purposes of this office action "the following steps" will be considered --steps--.

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6. Claim 28 recites the limitation "the indicated order" in the second line of the claim.

There is insufficient antecedent basis for this limitation in the claim. No order has been indicated in the claims. Therefore, no order will be considered.

7. Claim 29 recites the limitation "the following steps" in the first line of the claim. There is insufficient antecedent basis for this limitation in the claim. For purposes of this office action "the following steps" will be considered --steps--.

8. Claim 29 recites the limitation "the indicated order" in the second line of the claim.

There is insufficient antecedent basis for this limitation in the claim. No order has been indicated in the claims. Therefore, no order will be considered.

9. It should be noted that an indicated sequential order implies that there is a definite order claimed. Such order is characterized by something to the effect of "...a first step of... a second step of..." or "...after forming..." or "...after providing..." and all steps would fit somewhere into the order.

### ***Claim Rejections - 35 USC § 102***

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 10, 11, 14, 16, 20, 24, and 27 – 29 are rejected under 35 U.S.C. 102(b) as being anticipated by Nishimura et al. (USPAT 5604380, Nishimura).

With regard to claim 10, Nishimura discloses in figure 2a a method for forming an electronic structure. Nishimura discloses in figure 2a providing a metallic plate (3) such that all exterior surfaces of the metallic plated are exposed. Nishimura discloses in figure 2a forming a mineral layer (4) on the metallic plate. Nishimura discloses in figure 2a forming an adhesion promoter layer (5) on the mineral layer.

With regard to claim 11, Nishimura discloses in figure 2a wherein forming the mineral layer includes forming the mineral layer having a mineral selected from the group consisting of silicon dioxide.

With regard to claim 14, Nishimura discloses in figure 2a wherein providing the metallic plate includes providing the metallic plate having a metallic substance of aluminum.

With regard to claim 16, Nishimura discloses in figure 2a wherein forming the adhesion promoter layer includes forming the adhesion promoter layer having a silane from the group consisting of 3-glycidoxypyltrimethoxysilane.

With regard to claim 20, Nishimura discloses in figure 2c further comprising bonding the adhesion promoter layer to a structural adhesive (6).

With regard to claim 24, Nishimura discloses in figure 2a wherein forming the mineral layer comprises forming the mineral layer covering an edge surface of the metallic plate and a portion of a top surface of the metallic plate.

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With regard to claim 27, Nishimura discloses in figure 2a wherein forming the adhesion promoter layer includes forming the adhesion promoter layer having an adhesion promoter comprising a silane.

With regard to claim 28, Nishimura discloses in figure 2a a method for forming an electronic structure. Nishimura discloses in figure 2a providing a metallic plate (3) such that all exterior surfaces of the metallic plated are exposed. Nishimura discloses in figure 2a bonding a mineral layer to the metallic plate. Nishimura discloses in figure 2a covalently bonding an adhesion promoter layer to the mineral layer.

With regard to claim 29, Nishimura discloses in figure 2a a method for forming an electronic structure. Nishimura discloses in figure 2a providing a metallic plate (3) such that all exterior surfaces of the metallic plated are exposed. Nishimura discloses in figure 2a bonding a mineral layer to the metallic plate. Nishimura discloses in figure 2a bonding an adhesion promoter layer to the mineral layer such that said bonding to the mineral layer is moisture resistant.

12. Claims 10, 17 – 19 and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Kozono (USPAT 5619070, Kozono).

With regard to claim 10, Kozono discloses in figure 2a a method for forming an electronic structure. Kozono discloses in figure 2a providing a metallic plate (15) such that all exterior surfaces of the metallic plated are exposed. Kozono discloses in figure 2a forming a mineral layer (14) on the metallic plate. Kozono discloses in figure 2a forming an adhesion promoter layer (13) on the mineral layer.

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With regard to claim 17, Kozono discloses in figure 2a providing an electronic assembly (11). Kozono discloses in figure 2a providing an adhesive material (19). Kozono discloses in figure 2a coupling the metallic plate to the electronic assembly by interfacing the adhesive material between the adhesion promoter layer and the electronic assembly. Kozono discloses in figure 2a providing an electronic carrier (18). Kozono discloses in figure 2a coupling the electronic assembly to the electronic carrier. Kozono discloses in figure 2a coupling the metallic plate to the electronic carrier by interfacing the adhesive material between the adhesion promoter layer and the electronic carrier.

With regard to claim 18, Kozono discloses in figure 2a wherein providing an adhesive material includes providing the adhesive material having a structural epoxy adhesive.

With regard to claim 19, Kozono discloses in figure 2a wherein providing a metallic plate includes providing the metallic plate having a coefficient of thermal expansion (CTE) that exceeds a CTE of the electronic assembly.

With regard to claim 30, Nishimura discloses in figure 2a, and column 3, line 47 wherein providing the metallic plate includes providing the metallic plate having a metallic substance of copper.

### *Claim Rejections - 35 USC § 103*

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 12 and 25 rejected under 35 U.S.C. 103(a) as being unpatentable over Nishimura as applied to claim 10 above, and further in view of Chen et al. (USPAT 5413950, Chen).

Nishimura does not teach a thickness for the mineral layer. Chen teaches in column 5, lines 25 – 34 wherein forming a mineral layer includes forming the mineral layer having a thickness of about 300 angstroms. It would have been obvious to one of ordinary skill in the art at the time of the present invention to use the thickness of the mineral layer of Chen in the method of Nishimura in order to protect against contamination as stated by Chen in column 5, lines 25 – 34.

15. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nishimura as applied to claim 10 above, and further in view of Nishino et al. (USPAT 5586385, Nishino).

Nishimura discloses in figure 2a wherein forming the mineral layer includes depositing the mineral layer on a clean surface of the metallic plate. Nishimura is silent to forming the mineral layer including sputtering the mineral layer on a clean surface of the metallic plate. Nishino discloses in column 5, lines 13 – 17 wherein forming a mineral layer includes depositing the mineral layer on a clean surface of a metallic plate. It would have been obvious to one of ordinary skill in the art at the time of the present invention to use the sputtering method of Nishino in the method of Nishimura in order to use an alternate forming method that is sufficient to form the layer and less costly.



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16. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nishimura as applied to claim 10 above, and further in view of Ichinose et al. (USPAT 5681402, Ichinose).

Nishimura does not teach wherein forming the adhesion promoter layer includes forming the adhesion promoter layer having an adhesion promoter selected from the group consisting of a titanate, a zirconate, and an aluminate. Ichinose teaches in column 7, lines 15 – 21 wherein forming an adhesion promoter layer includes forming the adhesion promoter layer having an adhesion promoter consisting of a titanate. It would have been obvious to one of ordinary skill in the art at the time of the present invention to use the titanate of Ichinose in the method of Nishimura in order to control the interface between dissimilar materials as stated by Ichinose in column 7, lines 15 – 21.

17. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nishimura as applied to claim 10 above, and further in view of Robeson et al. (GB PAT 2297503, Robeson).

Nishimura is silent to the thickness of the adhesion promoter layer. Robeson teaches on pages 2, lines 18 – 24 wherein an adhesion promoter layer has a thickness of at least a monolayer. It would have been obvious to one of ordinary skill in the art at the time of the present invention to use the thickness of Robeson in the method of Nishimura in order to provide a savings on material costs.

18. Claims 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishimura as applied to claim 10 above, and further in view of one of ordinary skill in the art.

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Nishimura discloses in figure 2a wherein the adhesion promoting layer is a chemical compound. It is not clear if the adhesion promoting layer of Nishimura is either crystalline or amorphous. It is well known in the art to have an adhesion promoting layers of a chemical compound taking either a crystalline or an amorphous structure. It would have been obvious to one of ordinary skill in the art at the time of the present invention to use an amorphous or crystalline adhesion promoting layer in order to choose a structure which is desirable for the particular application depending on conductivity and surface tension properties desired.

### *Response to Arguments*

19. Applicant's arguments filed May 2, 2003 have been fully considered but they are not persuasive.

20. With regard to the applicant's argument that "the metallic plate (3) [of Nishimura] that is so formed is not provided as having all of its exterior surfaces exposed as required by claim 10," it should be noted that in the providing step of Nishimura the bottom surface of the metallic plate is exposed to layer 2. Also, the other surfaces of the metallic plate are exposed to the process environment after the providing step. There is no limitation in the applicant's claimed invention that states to what the surfaces of the metallic plate must be exposed. Therefore the applicant's arguments are not persuasive, and the rejection is proper.

21. With regard to the applicant's argument that "one may not conclude that Kozono teaches that the adhesive 14 is a mineral layer," it should be noted that Kozono clearly teaches that the

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adhesive layer is an mineral layer. Kozono's disclosure encompasses all known conductive adhesive layers. The applicant has not showed any evidence that a conductive adhesive layer can never be a mineral layer. Neither has the applicant claimed what material comprises the mineral layer. Thus, Kozono reads on the claimed invention. Therefore the applicant's arguments are not persuasive, and the rejection is proper.

22. In response to applicant's argument that "the mounting plate 13 is not an adhesion promoter layer on the mineral layer", a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). In this case the plate 13 has the intended use of promoting the adhesion between mineral layer 14 and the layer 12 in figure 2a of Kozono. Therefore the applicant's arguments are not persuasive, and the rejection is proper.

23. In response to applicant's arguments, the recitation "in the indicated sequential order" has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone.

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See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). Further, as indicated in the U.S.C. section 112, second paragraph rejection, it is not clear what, if any, order has been indicated. Therefore the applicant's arguments are not persuasive, and the rejection is proper.

### *Conclusion*

24. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul E Brock II whose telephone number is (703)308-6236. The examiner can normally be reached on 8:30 AM-5:30 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lee can be reached on (703)308-1690. The fax phone numbers for the organization where this application or proceeding is assigned are (703)308-7722 for regular communications and (703)308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

Paul E Brock II  
May 21, 2003



EDDIE LEE  
SUPERVISORY PATENT EXAMINER  
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